

is justified when the aberrations are so large that diffraction plays but a small part in determining the quality of imagery. Now, however, better optical systems are being produced. Automatic computers make it possible to completely test a design by computation. The interferometer enables the wave front emergent from an optical system to be completely mapped. Also, integrating devices can be used to readily and completely determine the diffraction effects. Accordingly it is now possible to evaluate an optical image forming system in terms of physical optics either when it has only progressed to the design stage or after a prototype is available.

As a consequence of these new developments it seemed desirable to re-examine the older methods of image evaluation as well as the newer procedures in order to place image evaluation upon a more sound engineering basis. For this purpose a symposium was held in which scientists from all parts of the world participated. The full papers of this symposium are presented in this book including the discussions.

#### Books Received

- Wool—Its Chemistry and Physics.* By P. Alexander and R. F. Hudson (Chapman & Hall), 1954. Pp. viii + 404. Price 45 sh.
- Subminiaturization Techniques for Low-Frequency Receivers.* (NBS Circular 545), 1954. Pp. iv + 64. Price 50 cents.
- Text-Book of Metallurgy* By A. R. Bailey. (Macmillan & Co.), 1954. Pp. viii + 560. Price 30 sh.

*Stainless Iron and Steel*, Vol. 2. Third Edition. Revised. (*Microstructure and Constitution*.) By J. H. G. Monypenny. (Chapman & Hall), 1954. Pp. xii + 830. Price 55 sh.

*Essays on the Social History of Science*, Vol. 3. Edited by S. Lilley Cénlaurs. (Ejnar Munksgaard, Copenhagen), 1953. Pp. 182. Price not given.

*Annual Review of Biochemistry*, Vol. 23. Edited by J. Murray Luck, Hubert S. Loring and Gordon Mackinney (Annual Reviews, Inc.), 1954. Pp. ix + 636. Price \$7.00.

*Technical Report of the Scientific Advisory Board for the Year 1953.* (Indian Council of Medical Research), 1954. Pp. xiii + 449. Price Re 1.

*The Physical Chemistry of Dyeing.* By Thomas Vickerstaff (Macmillan & Co.), 1954. Pp. viii + 514. Price 42 sh.

*Ion Transport Across Membranes.* Edited by H. T. Clarke and D. Nachmansohn. (Academic Press, Inc.), 1954. Pp. xi + 298. Price \$7.50.

*Hydraulic Research in the United States.* Edited by H. K. Middleton (NBS, Washington 25, D.C.), 1954. Pp. xii + 193. Price \$1.25.

*Discovery Reports*, Vol. XXVI, Nos 1-8. Issued by the National Institute of Oceanography (Cambridge University Press), 1954. Pp. vi + 354. Price 99 sh.

*Micro-Element Nutrition of Plants.* By K. N. Lal and M. S. Subba Rao. (Banaras Hindu University Press, Banaras 5), 1954. Pp. viii + 246. Price Rs. 20.

### PROTEINS IN HEALTH, DISEASE AND INDUSTRY

A SYMPOSIUM on the above subject was held in Bombay on 6th and 7th August 1954, under the auspices of the National Institute of Sciences of India, when several papers among the forty-four received, were read and discussed. Many of them stressed the need for the proper utilization of waste proteins like those from shark fish residues, and the preparation of protein hydrolysates from pulse proteins, fibrin and the like. Interesting discussion took place in regard to the degree of hydrolysis of proteins during acid and enzymic digestion and the destruction during hydrolysis of some essential amino acids. The use of formic acid along with the hydrochloric acid for a quick and efficient method of hydrolysis of tissue proteins was also discussed. The nutritive value of different proteins by such methods as bio-

logical value determination using rats and by the maintenance of liver cytoplasm was also reported. Other interesting reports were the remarkable growth-stimulating effect observed in growing heifers when small amounts of iodinated casein were added to their daily feed, and the study of the different factors such as buffer, temperature and catalyst in the iodination of different proteins. Papers relating to bacterial proteins and their prophylactic use, the mechanism of specific dynamic action of proteins, the reactivity of thiol groups in proteins and histamine-like substances in protein hydrolysates were also interesting, as well as the one relating to preservation of proteins particularly the processing of meat from fish of the carp variety.

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